

REMARKS

As stated in the Office Action on page 2, claims 24-52 remain rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Office is thanked for the additional effort that has been made to explain the rejection in different language in order to clarify the issue and address the arguments previously presented by the Applicant.

The Office explains that the reasons the claims are indefinite is because "they are internally inconsistent." It is further explained that the claims "recite that the composition is "for use" i.e., an aqueous impregnant for making a catalyst. However, the support material is specifically claimed. Therefore, the composition being claimed must be the actual catalyst composition, and this is the way in which the claims have been analyzed." (Emphasis added) The Office concludes with a question, "in fact, would components (A) - (C) even be present in the final catalyst in the form in which they are recited in claim 24?" This rejection is traversed.

The question posed by the Office in the sentence quoted above precisely frames why the claims cannot be the actual catalyst composition in contrast to the view of the Office that the claims "must be" the actual catalyst composition. In support of Applicant's view, Applicant quotes from the Office Action in the section in which the claims are rejected under 35 U.S.C. §103 on page 4: "the instantly claimed invention as presented in claims 24-52 recites several components (apparently actually part of the aqueous impregnant composition used to make the final product, and a support material." This summary statement by the Office reasonably characterizes claims 24-52 and clearly points out that the claims are in a form in which they do not claim an "actual

catalyst composition." The elements recited, for example, in claim 24 are the several components necessary "for use in preparing a catalytically active solid" and not the actual catalyst. The presence of a catalyst carrier as one of the claimed elements does not necessarily result in the composition being the catalyst per se. As described in the specification, and as further claimed, for example, in claim 80, a catalyst can be prepared using the compositional elements recited in claim 24. Withdrawal of this rejection is respectfully requested.

Claim 80 is also rejected under 35 U.S.C. §112, second paragraph, as being indefinite. It is said that claim 80 recites a composition prepared by impregnation of a catalyst carrier with a stabilized aqueous composition according to any of claims 24 through 32. The Office explains, "however, claims 24-32 (as discussed above) are not directed to an aqueous solution, they are directed to the final catalyst, including the carrier." This rejection is traversed.

It is respectfully noted that claim 80 refers to "the . . . carrier" because it is a recited element in claim 24, but claim 80 provides a method step for utilizing the recited elements that appear in claim 24. Claim 80 is clearly a product-by-process claim and recites process steps referring back to the aqueous composition that is recited in claims 24-32 and further recites additional steps in order to prepare a dried catalyst composition. Thus, claim 80 is consistent with the recitations in claims 24-32 and withdrawal of the rejection is respectfully requested.

The section of the Office Action beginning on page 3 and continuing to the end is a rejection of the claims currently under examination in view of 35 U.S.C. §103. On page 4, the Office states that the application currently names joint inventors. It is noted that the present application names a

single inventor and therefore the admonition in the first paragraph on page 4 is unnecessary.

Claims 24-52 and 80-88 remain rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. 3,287,280 to *Colgan, et al.* (hereinafter "*Colgan*") or U.S. 4,500,424 to *Simpson, et al.* (hereinafter "*Simpson*"). The Office notes that the explanation of the references has been modified so as to alleviate any confusion; the Office is thanked for this additional effort.

The next portion of the Office Action begins in the last full paragraph on page 4 and is directed to the rejection of claims 85-88. The Office Action notes that Applicant refers to the carrier as a "foraminous carrier" whereas *Colgan* and *Simpson* identify support materials such as silica, alumina, silica alumina and so forth. To the extent that Applicant's claims generally recite a foraminous carrier, Applicant takes no exception to the observation by the Office that there is no apparent distinction between the use of this term in claims 85-88 and the generic materials recited by *Colgan* and *Simpson* as noted. However, the Office continues to assert that "the pore diameter (of the carrier) is a result-effective variable and the skilled artisan would be expected to select carriers having appropriate pore diameter, volume distribution, and so forth depending on the ultimate use of the composition." The Office continues, "this position is buttressed by Applicant's statements on the top of page 17 of the arguments (response dated September 6, 2005). *Simpson* teaches a specific pore distribution for a specific reason, indicating that such modification is within the skill of the artisan." The basis for the rejection concludes with the statement "additional evidence of this position can be found in U.S. 4,188,743 to *Simpson, et al.* and U.S. 5,498,586 to *Dai, et al.*" This rejection is traversed.

It is respectfully noted that the Office misapprehends the logic of the argument previously asserted on page 17 of the earlier response noted in the present Office Action. Applicant's prior argument pointed out that the invention in *Simpson* was directed to a narrow pore sized distribution having specific features. In other words, although pore size or its volume distribution are argued by the Office to be a result-effective variable, clearly, as shown in *Simpson*, a patentable invention can be made, having a result-effective variable as the core inventive feature.

Notably, of the claims rejected in this portion of the Office Action, claims 85-87 recite several different specific elements that characterize the resulting catalyst useful in various petroleum processes. The Office focuses on a single property, pore diameter, and apparently disregards the other recited elements in these claims. Specifically, Applicant notes that the art relied on does not teach or suggest the following elements, namely, "loss in weight on ignition at 1000°F to 1200°F, of said catalyst is less than about 5 weight percent based on the weight of the catalyst" and "wherein the ASI ratio is greater than about 0.75 to about 2.0." Furthermore the application specifically defines ASI ratio in paragraph 71 beginning on page 28. The application teaches that the ASI value characterizes the catalytically active molybdenum sites in the catalyst and that ASI values for catalysts prepared according to the teachings of the present application are particularly high as a consequence of the combination of the elements set forth in the claims and not merely as a consequence of the use of a carrier having a particular pore size. Applicant has not asserted that selection of a particular pore size alone is a critical feature of the invention and it would be inappropriate to either assume so or to reject the current claims on that limited basis. In the absence of any teachings

in the references relied on, *Colgan* and *Simpson*, of the combination of properties recited in claims 85-87 and thereafter in claim 88 as a dependent claim, there is an insufficient basis on which to reject these claims under 35 U.S.C. §103 (MPEP 2143.03, "All Claim Limitations Must be Taught or Suggested"). Withdrawal of this rejection is respectfully requested.

Turning now to the rejection of claims 24-52, the Office states that it "considers that the components of the composition as set forth in the instant claims do not differ substantially from those of the prior art." It is further said "the main difference between the claimed composition and that of the references is the claimed requirement that the Group VIII impregnant be insoluble in water." In support of the rejection the Office reasons "as a solution is made by adding the phosphorus component prior and the other metal prior to introduction of the Group VIII metal, the solubility of the substance in water is really not relevant as long as it is soluble or can be dispersed to some degree in the final impregnant solution. Both references teach this to be the final result. Accordingly, such limitation would not appear to lend patentable moment to the process under examination. See also Col. 3 and 4 of *Colgan, et al.*" This analysis and rejection is traversed.

Applicant first notes that in explaining the basis for the rejection, the Office essentially agrees with Applicant's view of the advance described in the application. Specifically, the Office considers that the components of the compositions as set forth in the claims do not differ substantially from those of the prior art." (Emphasis added) In this regard, in Applicant's prior response, it was stated "significantly, the disclosure of the present application states, "although differences in the methods and compositions used to prepare such catalysts (of the present invention) may be considered small

compared to those described in the prior art, the catalyst resulting from these changes performs significantly better in hydrocarbon conversion processes than catalysts prepared according to prior art methods." (Paragraph [0070], page 28) These improvements are clearly demonstrated by the data shown in the examples and figures of the present application.

Considering, for example, the requirement that the Group VIII impregnant be insoluble in water, the Office has dismissed this difference as being insignificant. The Office states that the solubility in water is "really not relevant as long as it is soluble or can be dispersed to some degree in the final impregnant solution." However, the Office provides no support for such a conclusion based on the art relied on in the Action. In contrast, the references require that the Group VIII impregnant be solubilized in order to impregnate the carrier and to do so, further require a sufficiently large amount of phosphoric acid. Consequently, one of the elements of the presently claimed compositions, the ratio of phosphorous to molybdenum, differs substantially from those described in the prior art. The higher levels of phosphorus in the compositions of the prior art are typically the result of using higher levels of phosphoric acid in order to solubilize the Group VIII component. While the Office asserts that dispersion of the Group VIII metal to "some degree" would be sufficient, there is no basis or teaching in the prior art relied on that anything other than solubilization will be sufficient or that dispersion of an insoluble component would be useful. It is only the inventor of the present application who has described, defined and required that this component be water insoluble. Applicant demonstrates that his identification and specification of the elements recited in the claims is significant, since the performance of the resulting catalyst is significantly improved. On the other hand, the assertion that "any impregnant would have

been obvious" cannot reasonably be supported. (Office Action, page 5, 5 lines from the bottom.)

In its concluding remarks relating to this aspect of the rejection (appearing at the end of the first paragraph of page 6 of Office Action), the Office states "Applicant should additionally note that the claims recite a catalyst composition." As noted earlier, this analysis is contravened by the language of the claims themselves which recite several elements for use in preparing a catalytically active solid and not the catalyst itself.

The Office next addresses a recitation in the claims that the carrier is "uncalcined." (Page 6, second paragraph) In explaining the basis for its disagreement with Applicant that this limitation is significant it is stated, "this limitation in no way excludes the step of calcining the carrier or the final catalyst product at some point in the production. In fact, Applicant's own claims 84 and 88 do so." This analysis is traversed.

While the treatment of an impregnated carrier can involve subsequently calcining of the composition as recited in claims 84 and 88, it is noted that such calcining is carried out on a catalyst precursor based on an uncalcined carrier that has been dried (84) or pre-impregnated, shaped, and dried (88). Consequently, it should be clear that the calcining operation is carried out using a carrier that has been previously impregnated utilizing the composition recited in claim 24 and those claims dependent thereon. In other words, components (A) - (C) recited in claim 24 are used to impregnate the *uncalcined* carrier, which is then dried and thereafter calcined. It should be apparent that a different catalyst, physically and/or compositionally, results if instead a calcined carrier is impregnated with the compositional elements recited in the claims and thereafter

merely dried or if the impregnated carrier is dried and calcined yet a second time.

The Office further states that the requirement relating to an uncalcined carrier is not present in all of the claims and therefore the claims are "not remotely commensurate with the claimed subject matter." Respectfully, this is not accurate. Claim 24 requires that the composition include an uncalcined carrier as an element. Claims 25-52 depend directly or indirectly from claim 24 and therefore similarly include an uncalcined carrier. Furthermore, claims 80-84 each refer back directly or indirectly to claim 24 and similarly include an uncalcined carrier. Finally, while claims 85-88 do not explicitly recite the presence or use of an uncalcined carrier, it is noted that each of these claims rely for patentability on a combination of recited catalyst characteristics or elements as discussed above. Thus it is clear that each of claims 24-52 is fully commensurate in scope with the feature relating to the use of an uncalcined carrier.

Further, the Office asserts that Applicant has not demonstrated that the point of "product calcinations is the sole reason for any alleged differences between the composition of the prior art and that obtained by Applicant." Applicant agrees wholeheartedly with the Office since Applicant does not assert that the use of an uncalcined carrier is the "sole reason" for differences between his invention and that of the prior art. As described in significant detail in the application itself and as recited in the claims, the invention is distinguished from the prior art on the basis of several compositional differences.

The Office further asserts that "pre-calcination in the prior art is taught "generally", but is not necessarily a requirement." Applicant takes exception to this characterization in view of the prior art relied on. As shown in the table provided with the amendment filed September 6, 2005

(page 18), each of the references, *Simpson* and *Colgan* (and additionally the reference *Dai*) utilize a post-impregnated carrier, whereas the compositions of the present invention do not do so. This feature is one that distinguishes the claims of the present invention from the art relied on by the Office. It is inappropriate to characterize the art relied on as teaching this feature "generally", but not "necessarily" since impregnation of a calcined carrier is relied on in these references. Extrapolating from what the references teach to something they do not teach can only be done with the benefit of Applicant's own disclosure and this is not an acceptable method of analysis under 35 U.S.C. §103.

Finally, the Office states, "accordingly, absent some showing linking time of calcination (all other conditions being equal), Applicant has not demonstrated criticality to the identity to the final product catalyst under examination." (Last sentence page 6 to top of page 7.) Respectfully, Applicant asserts that such a comparison cannot, indeed should not, be made in the present invention, since to do so would suggest that Applicant's invention is reduced to a single element and Applicant makes no such assertion. In fact, the claims are not so limited. In conclusion, it is respectfully requested that the rejection of claims 24-52 be withdrawn in view of the complete analysis and several arguments presented above.

As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited.

If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that the Examiner telephone Applicant's attorney at (908) 654-5000 in order to overcome any additional objections which the Examiner might have.

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If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

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Respectfully submitted,

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